ST. LUCIE INLET STATE PARK

RESULTS OF 2005 SEA TURTLE MONITORING

Prepared by

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May 2006

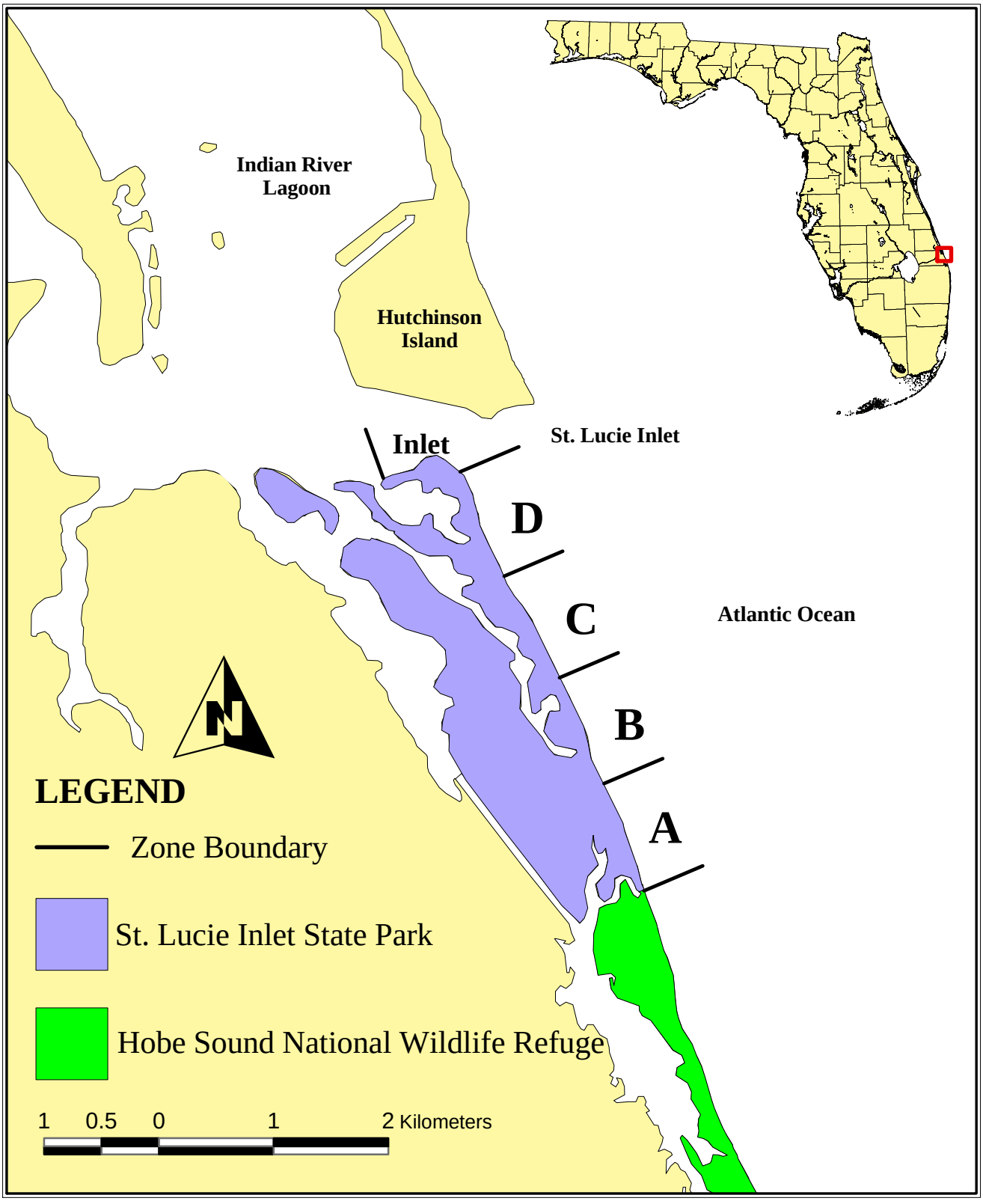
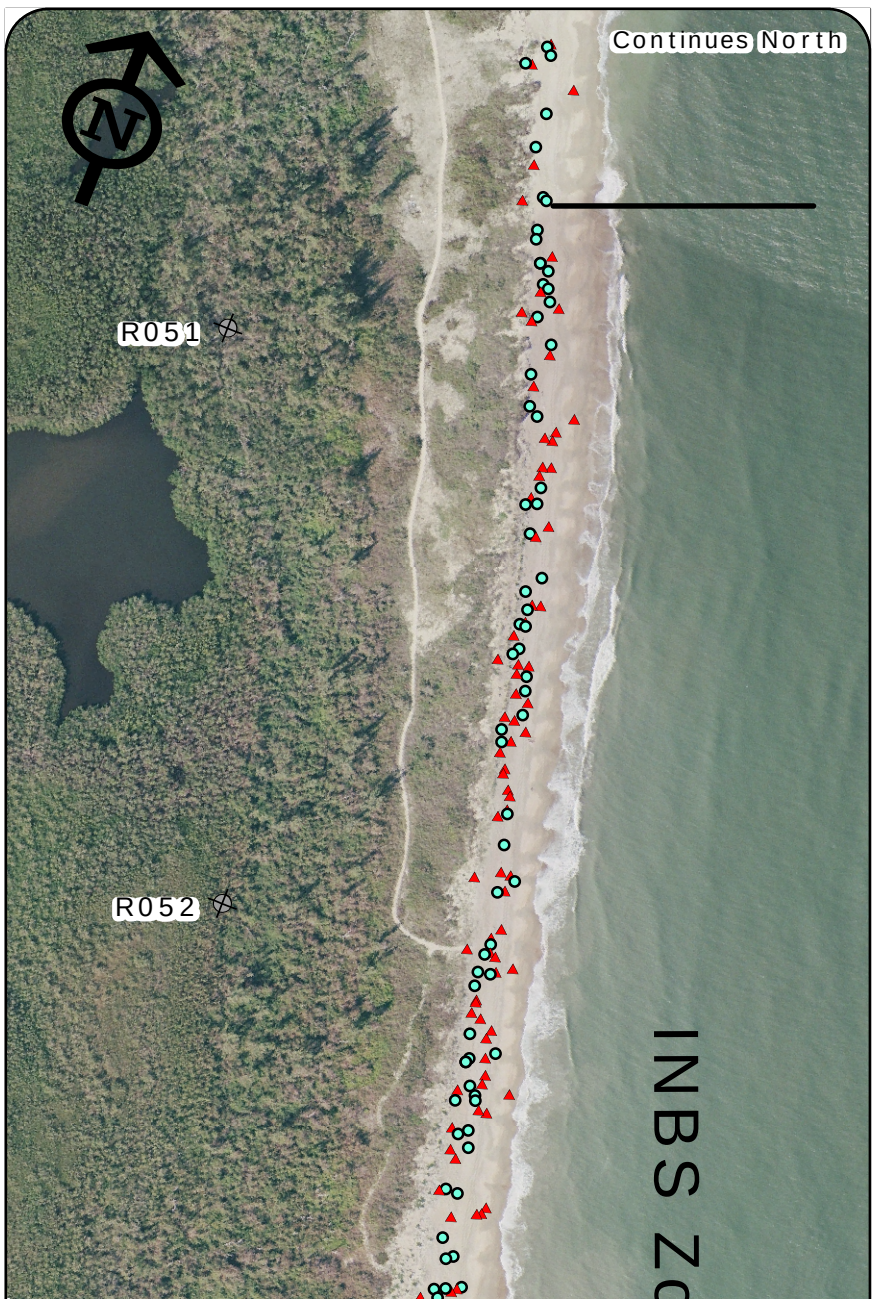


Figure 1. Location of Index Nesting Beach Survey Zones A - Inlet used to monitor sea turtle nesting activity along the beaches of the St. Lucie Inlet State Park.



Legend

FDEP Reference Monument

Loggerhead Crawls

Nest

False Crawl

Note:

Reliable GPS Data Not Available for 1 loggerhead nest and 1 false crawl.

0 300 600 1,200 Feet

Figure 2a	Location of 2005 Loggerhead Sea Turtle Crawls	Photo: Martin County Information Technology Services, January 2005
	St. Lucie Inlet State Park Jupiter Island, Martin County, FL	Scale: 1" = 300'

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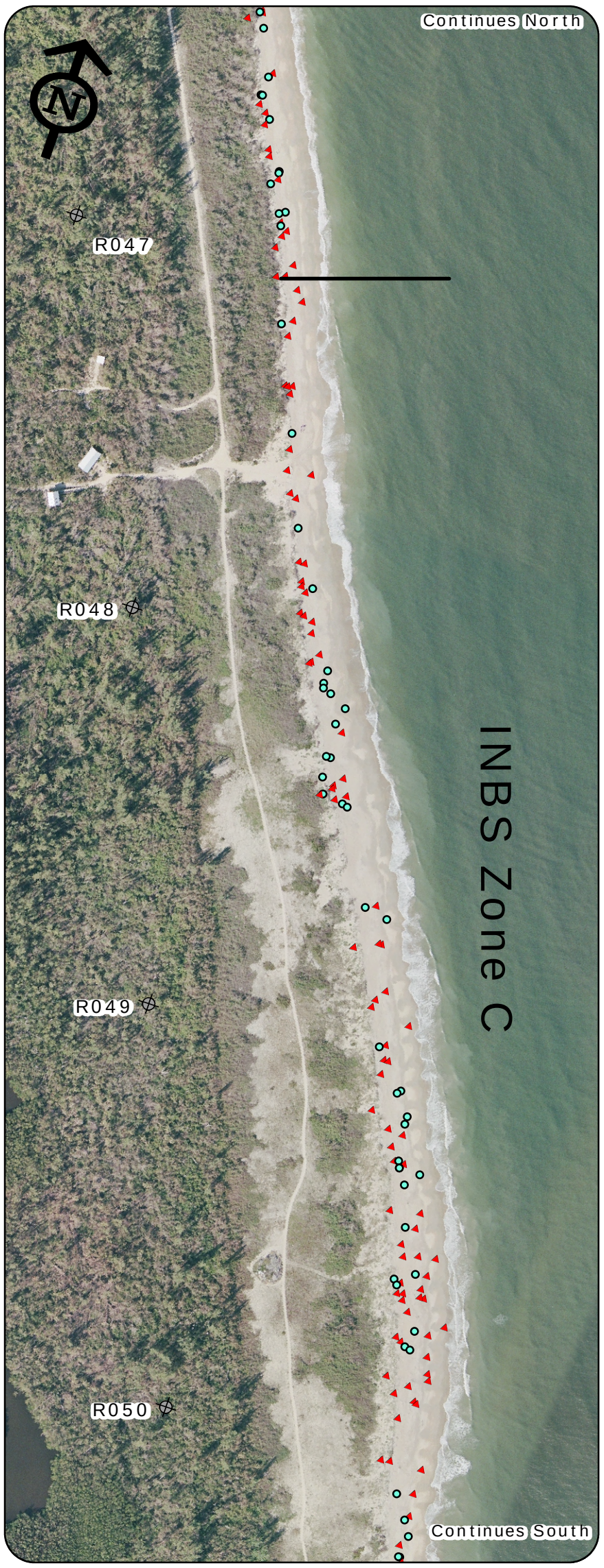
Legend

FDEP Reference Monument

Loggerhead Crawls

Nest

False Crawl



Note:

Reliable GPS Data Not Available for 1 loggerhead nest and 1 false crawl.

0 300 600 1,200 Feet

Figure 2b	Location of 2005 Loggerhead Sea Turtle Crawls	Photo: Martin County Information Technology Services, January 2005
	St. Lucie Inlet State Park Jupiter Island, Martin County, FL	Scale: 1" = 300'

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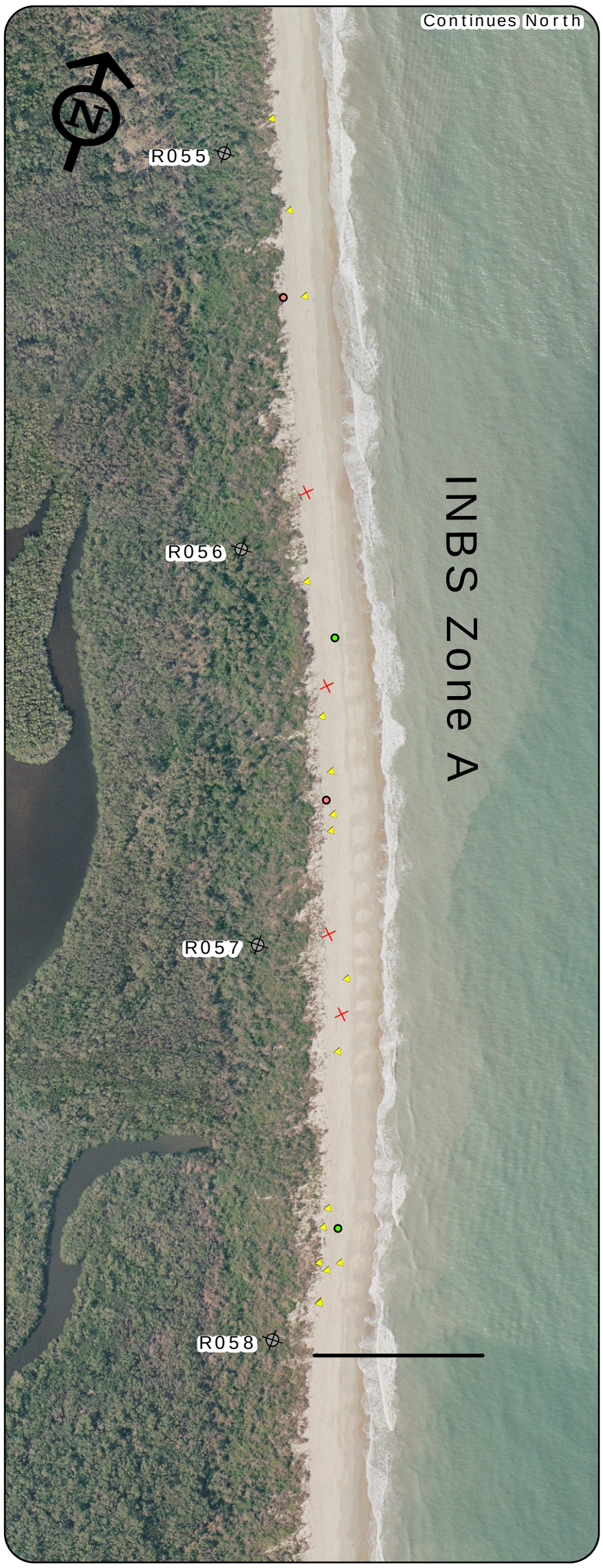

Legend

FDEP Reference Monument

Green Turtle Crawls

- Nest
- False Crawl

Leatherback Crawls

- Nest
- False Crawl

Kemp's Ridley Crawls

- Nest
- False Crawl

Note:

Reliable GPS Data Not Available for:
2 green turtle nests
2 leatherback nests
1 Kemp's ridley false crawl

0 300 600 1,200 Feet

Figure 3a	Location of 2005 Green, Leatherback, and Kemp's Ridley Sea Turtle Crawls	Photo: Martin County Information Technology Services, January 2005
	St. Lucie Inlet State Park Jupiter Island, Martin County, FL	Scale: 1" = 300'

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Legend

FDEP Reference Monument

Green Turtle Crawls

Nest

False Crawl

Leatherback Crawls

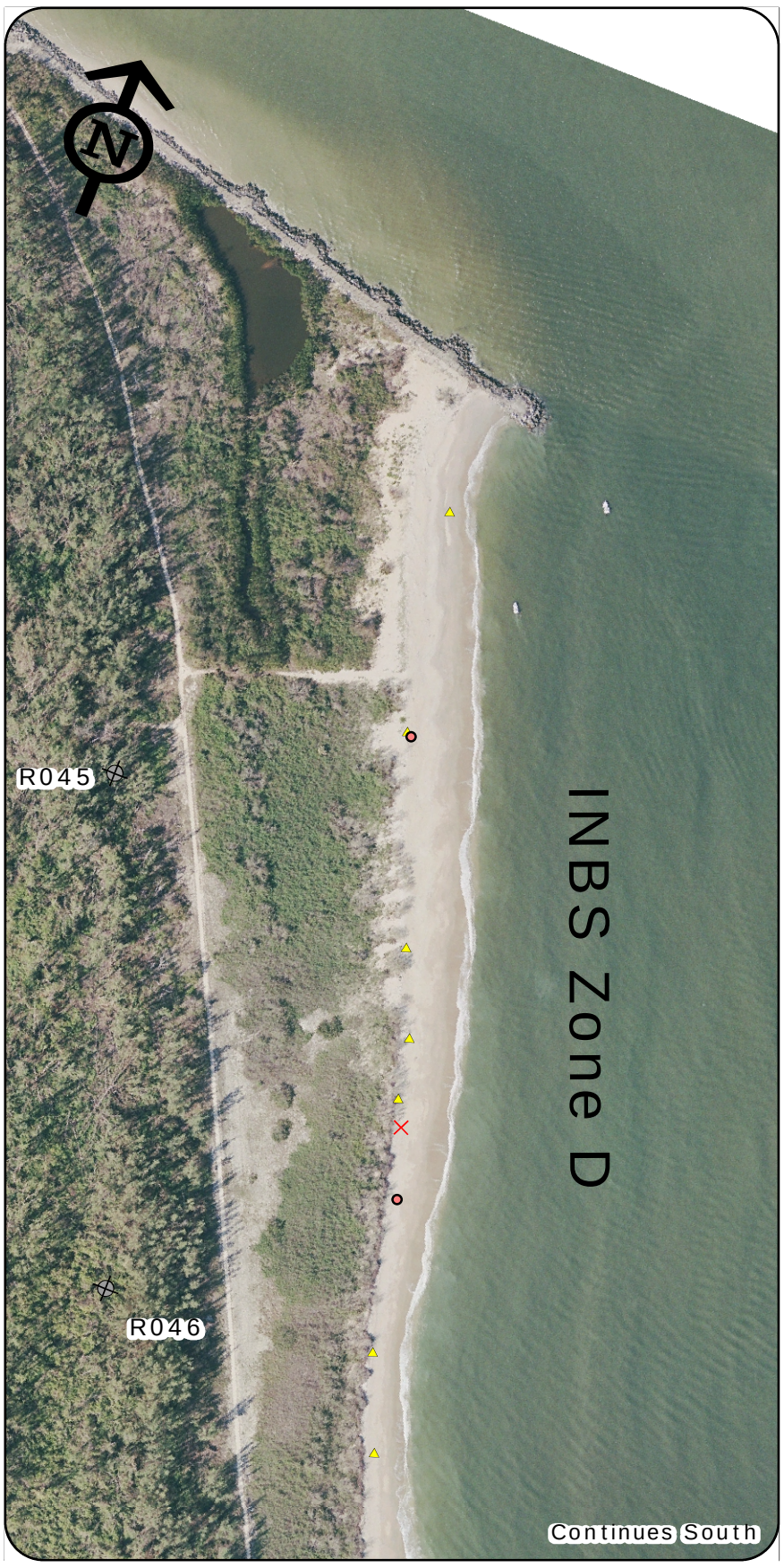
Nest

False Crawl

Kemp's Ridley Crawls

Nest

False Crawl



Note:

Reliable GPS Data Not Available for:
2 green turtle nests
2 leatherback nests
1 Kemp's ridley false crawl

0 300 600 1,200 Feet

Figure 3b	Location of 2005 Green, Leatherback, and Kemp's Ridley Sea Turtle Crawls	Photo: Martin County Information Technology Services, January 2005
	St. Lucie Inlet State Park Jupiter Island, Martin County, FL	Scale: 1" = 300'

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Table 1. Sea turtle crawl activity summarized by month and species, St. Lucie Inlet State Park, Jupiter Island, Florida, 2005. Includes only false crawls and nests above the previous high tide line.

Survey Month[1]	Loggerhead Turtle		Green Turtle		Leatherback Turtle		Kemp's Ridley Turtle	
	Nests	False Crawls	Nests	False Crawls	Nests	False Crawls	Nests	False Crawls
March	0	0	0	0	1	1	0	0
April	1	1	0	0	2	2	0	0
May	43	41	0	0	4	1	0	6
June	133	135	3	8	3	1	1	5
July	92	203	5	22	0	0	0	0
August	20	23	4	10	0	0	0	0
September	4	0	0	0	0	0	0	0
Total	**293**	**403**	**12**	**40**	**10**	**5**	**1**	**11**

[1] Daily nesting surveys were conducted from 15 April through 16 September 2005. Nests deposited before 15 April were reported by State Park staff and verified by EAI.

Table 2. Loggerhead turtle (*Caretta caretta*) crawl activity and nesting success, summarized by Index Nesting Beach Survey (INBS) Zone, St. Lucie Inlet State Park, Jupiter Island, Florida, 2005. Includes only false crawls and nests above the previous high tide line.

INBS Zone	Total Crawls	Total Nests	Total False Crawls	Nesting Success[1]
A	254	114	140	44.88%
B	225	99	126	44.00%
C	140	47	93	33.57%
D	68	33	35	48.53%
INLET	9	0	9	0.00%
Total	**696**	**293**	**403**	**42.10%**

[1] Nesting Success = (number of nests /number of crawls) x 100 percent

Table 3. Green turtle (*Chelonia mydas*) crawl activity and nesting success, summarized by Index Nesting Beach Survey (INBS) Zone, St. Lucie Inlet State Park, Jupiter Island, Florida, 2005. Includes only false crawls and nests above the previous high tide line.

INBS Zone	Total Crawls	Total Nests	Total False Crawls	Nesting Success[1]
A	20	2	18	10.00%
B	19	5	14	26.32%
C	4	3	1	75.00%
D	9	2	7	22.22%
INLET	0	0	0	-
Total	**52**	**12**	**40**	**23.08%**

[1] Nesting Success = (number of nests /number of crawls) x 100 percent

Table 4. Leatherback turtle (*Dermochelys coriacea*) crawl activity and nesting success, summarized by Index Nesting Beach Survey (INBS) Zone, St. Lucie Inlet State Park, Jupiter Island, Florida, 2005. Includes only false crawls and nests above the previous high tide line.

INBS Zone	Total Crawls	Total Nests	Total False Crawls	Nesting Success[1]
A	6	4	2	66.67%
B	3	1	2	33.33%
C	4	3	1	75.00%
D	2	2	0	100.00%
INLET	0	0	0	-
Total	**15**	**10**	**5**	**66.67%**

[1] Nesting Success = (number of nests /number of crawls) x 100 percent

Table 5. Kemp's ridley turtle *(Lepidochelys kempii*) crawl activity and nesting success, summarized by Index Nesting Beach Survey (INBS) Zone, St. Lucie Inlet State Park, Jupiter Island, Florida, 2005. Includes only false crawls and nests above the previous high tide line.

INBS Zone	Total Crawls	Total Nests	Total False Crawls	Nesting Success[1]
A	5	0	5	0.00%
B	4	0	4	0.00%
C	2	1	1	50.00%
D	1	0	1	0.00%
INLET	0	0	0	-
Total	**12**	**1**	**11**	**8.33%**

[1] Nesting Success = (number of nests /number of crawls) x 100 percent

Table 6. Number of marked sea turtle nests, summarized by species and Index Nesting Beach Survey (INBS) Zone, St. Lucie Inlet State Park, Jupiter Island, Florida, 2005.

INBS Zone	Loggerhead Turtle	Green Turtle	Leatherback Turtle	Kemp's Ridley Turtle	Total
A	47	2	4	0	53
B	26	4	1	0	31
C	12	3	3	1	19
D	9	2	2	0	13
INLET	0	0	0	0	0
Total	**94**	**11**	**10**	**1**	**116**

Table 7. Fates of marked sea turtle nests summarized by species, St. Lucie Inlet State Park, Jupiter Island, Florida, 2005.

Fate		Loggerhead Turtle	Green Turtle	Leatherback Turtle	Kemp's Ridley Turtle	Total
Evaluated	Hatched with Signs of Emergence	56	5	7	1	**69**
	Hatched with No Signs of Emergence	7	0	0	0	**7**
	Did Not Hatch	3	0	0	0	**3**
	Total Evaluated	**66**	**5**	**7**	**1**	**79**
Not Evaluated	Depredated	18	3	1	0	**22**
	Washed Out	7	1	0	0	**8**
	Clutch Not Located	0	0	1	0	**1**
	Scavenged After Hatching	3	0	0	0	**3**
	Hatched, Clutch Not Located	0	1	1	0	**2**
	Hatched, Not Analyzed [1]	0	1	0	0	**1**
	Total Not Evaluated	**28**	**6**	**3**	**0**	**37**
Total Marked		**94**	**11**	**10**	**1**	**116**

[1] Contents washed out after hatchlings emerged, but before excavation/evaluation.

Table 8. Mean clutch size, initial clutch depth, incubation period, and reproductive success for marked loggerhead turtle (*Caretta caretta*) nests summarized by Index Nesting Beach Survey Zone, St. Lucie Inlet State Park, Jupiter Island, Florida, 2005. Note: hatching and emerging success of washed-out and depredated nests is assumed to be 0.0 percent.

Variable	Zone A	Zone B	Zone C	Zone D	Total
Mean Clutch Size (eggs)	100.9	107.1	122.9	108.5	107.2
N	26	22	10	8	66
Minimum	44	77	73	78	44
Maximum	146	162	174	160	174
Mean Initial Clutch Depth (cm)	55.6	55.0	52.5	55.5	54.9
N	26	22	10	8	66
Minimum	34	40.5	31.5	43	31.5
Maximum	67	68	63	66.5	68
Mean Incubation Period (days)	52.9	51.7	51.5	52.0	52.2
N	23	22	8	6	59
Minimum	46	45	48	51	45
Maximum	66	62	55	54	66
Mean Hatching Success[1] (%) Excluding Washed-Out & Depredated Nests	81.32	79.38	74.14	51.22	75.94
N	26	22	10	8	66
Minimum	26.50	30.33	0.00	0.00	0.00
Maximum	100.00	97.53	99.04	96.27	100.00
Mean Emerging Success[2] (%) Excluding Washed Out & Depredated Nests	78.26	77.50	70.92	48.83	73.33
N	26	22	10	8	66
Minimum	26.09	30.33	0.00	0.00	0.00
Maximum	100.00	97.53	99.04	88.81	100.00
Mean Hatching Success (%) Including Washed-Out & Depredated Nests	45.96	72.77	61.79	45.53	55.08
N	46	24	12	9	91
Minimum	0.00	0.00	0.00	0.00	0.00
Maximum	100.00	97.53	99.04	96.27	100.00
Mean Emerging Success (%) Including Washed Out & Depredated Nests	44.23	71.04	59.10	43.40	53.18
N	46	24	12	9	91
Minimum	0.00	0.00	0.00	0.00	0.00
Maximum	100.00	97.53	99.04	88.81	100.00

[1] Hatching success is the percentage of eggs in the clutch that hatched.
[2] Emerging success is the percentage of eggs in the clutch that produced hatchlings that successfully escaped from the nest.

Table 9. Mean clutch size, initial clutch depth, incubation period, and reproductive success for marked green turtle (*Chelonia mydas*) nests summarized by Index Nesting Beach Survey Zone, St. Lucie Inlet State Park, Jupiter Island, Florida, 2005. Note: hatching and emerging success of washed-out and depredated nests is assumed to be 0.0 percent.

Variable	Zone A	Zone B	Zone C	Zone D	Total
Mean Clutch Size (eggs)	-	122.0	107.5	128.0	118.6
N	0	1	2	2	5
Minimum	-	122	93	125	93
Maximum	-	122	122	131	131
Mean Initial Clutch Depth (cm)	-	79.0	76.3	75.0	76.3
N	0	1	2	2	5
Minimum	-	79.0	74.5	67.0	67.0
Maximum	-	79.0	78.0	83.0	83.0
Mean Incubation Period (days)	-	50.3	53.5	51.0	51.4
N	0	3	2	2	7
Minimum	-	48	50	51	48
Maximum	-	54	57	51	57
Mean Hatching Success[1] (%) Excluding Washed-Out & Depredated Nests	-	95.90	74.42	83.57	82.38
N	0	1	2	2	5
Minimum	-	95.90	53.76	82.40	53.76
Maximum	-	95.90	95.08	84.73	95.90
Mean Emerging Success[2] (%) Excluding Washed Out & Depredated Nests	-	95.90	72.40	82.80	81.26
N	0	1	2	2	5
Minimum	-	95.90	50.54	82.40	50.54
Maximum	-	95.90	94.26	83.21	95.90
Mean Hatching Success (%) Including Washed-Out & Depredated Nests	0.00	47.95	49.62	83.57	45.76
N	2	2	3	2	9
Minimum	0.00	0.00	0.00	82.40	0
Maximum	0.00	95.90	95.08	84.73	95.90
Mean Emerging Success (%) Including Washed Out & Depredated Nests	0.00	47.95	48.27	82.80	45.15
N	2	2	3	2	9
Minimum	0.00	0.00	0.00	82.40	0
Maximum	0.00	95.90	94.26	83.21	95.90

[1] Hatching success is the percentage of eggs in the clutch that hatched.
[2] Emerging success is the percentage of eggs in the clutch that produced hatchlings that successfully escaped from the nest.

Table 10. Mean clutch size, initial clutch depth, incubation period, and reproductive success for marked leatherback turtle (*Dermochelys coriacea*) nests summarized by Index Nesting Beach Survey Zone, St. Lucie Inlet State Park, Jupiter Island, Florida, 2005. Note: hatching and emerging success of washed-out and depredated nests is assumed to be 0.0 percent.

Variable	Zone A	Zone B	Zone C	Zone D	Total
Mean Clutch Size (eggs)	122.0	80.0	78.3	80.0	85.3
N	1	1	3	2	7
Minimum	122	80	70	60	60
Maximum	122	80	90	100	122
Mean Initial Clutch Depth (cm)	86.5	74.0	79.0	75.5	78.4
N	1	1	3	2	7
Minimum	86.5	74.0	70.0	71.0	70.0
Maximum	86.5	74.0	93.5	80.0	93.5
Mean Incubation Period (days)	79.5	65.0	71.0	63.5	70.5
12N	2	1	3	2	8
Minimum	70	65	59	60	59
Maximum	89	65	86	67	89
Mean Hatching Success[1] (%) Excluding Washed-Out & Depredated Nests	21.31	80.00	61.62	60.00	58.02
N	1	1	3	2	7
Minimum	21.31	80.00	56.67	50.00	21.31
Maximum	21.31	80.00	65.33	70.00	80.00
Mean Emerging Success[2] (%) Excluding Washed Out & Depredated Nests	19.67	75.00	55.64	47.50	50.94
N	1	1	3	2	7
Minimum	19.67	75.00	47.14	30.00	19.67
Maximum	19.67	75.00	65.33	65.00	75.00
Mean Hatching Success (%) Including Washed-Out & Depredated Nests	10.66	80.00	61.62	60.00	50.77
N	2	1	3	2	8
Minimum	0.00	80.00	56.67	50.00	0.00
Maximum	21.31	80.00	65.33	70.00	80.00
Mean Emerging Success (%) Including Washed Out & Depredated Nests	9.84	75.00	55.64	47.50	44.57
N	2	1	3	2	8
Minimum	0.00	75.00	47.14	30.00	0.00
Maximum	19.67	75.00	65.33	65.00	75.00

[1] Hatching success is the percentage of eggs in the clutch that hatched.
[2] Emerging success is the percentage of eggs in the clutch that produced hatchlings that successfully escaped from the nest.

Table 11. Results of reproductive success analysis of the marked Kemp's ridley turtle (*Lepidochelys kempii*) nest in Index Nesting Beach Survey Zone C, St. Lucie Inlet State Park, Jupiter Island, Florida, 2005.

Date Nest Recorded	6/3/05
Date of First Hatchling Emergence	7/26/05
Incubation Period (days)	53
Initial Clutch Depth (cm)	49.0
Clutch Size (eggs)	115
Number of Hatched Eggs	100
Number of Unhatched Eggs	15
Number of Pipped Eggs with Live Hatchlings	0
Number of Pipped Eggs with Dead Hatchlings	0
Number of Live Hatchlings	1
Number of Dead Hatchlings	0
Hatching Success[1]	86.96 %
Emerging Success[2]	86.09 %

[1] Hatching success is the percentage of eggs in the clutch that hatched.
[2] Emerging success is the percentage of eggs in the clutch that produced hatchlings that successfully escaped from the nest.

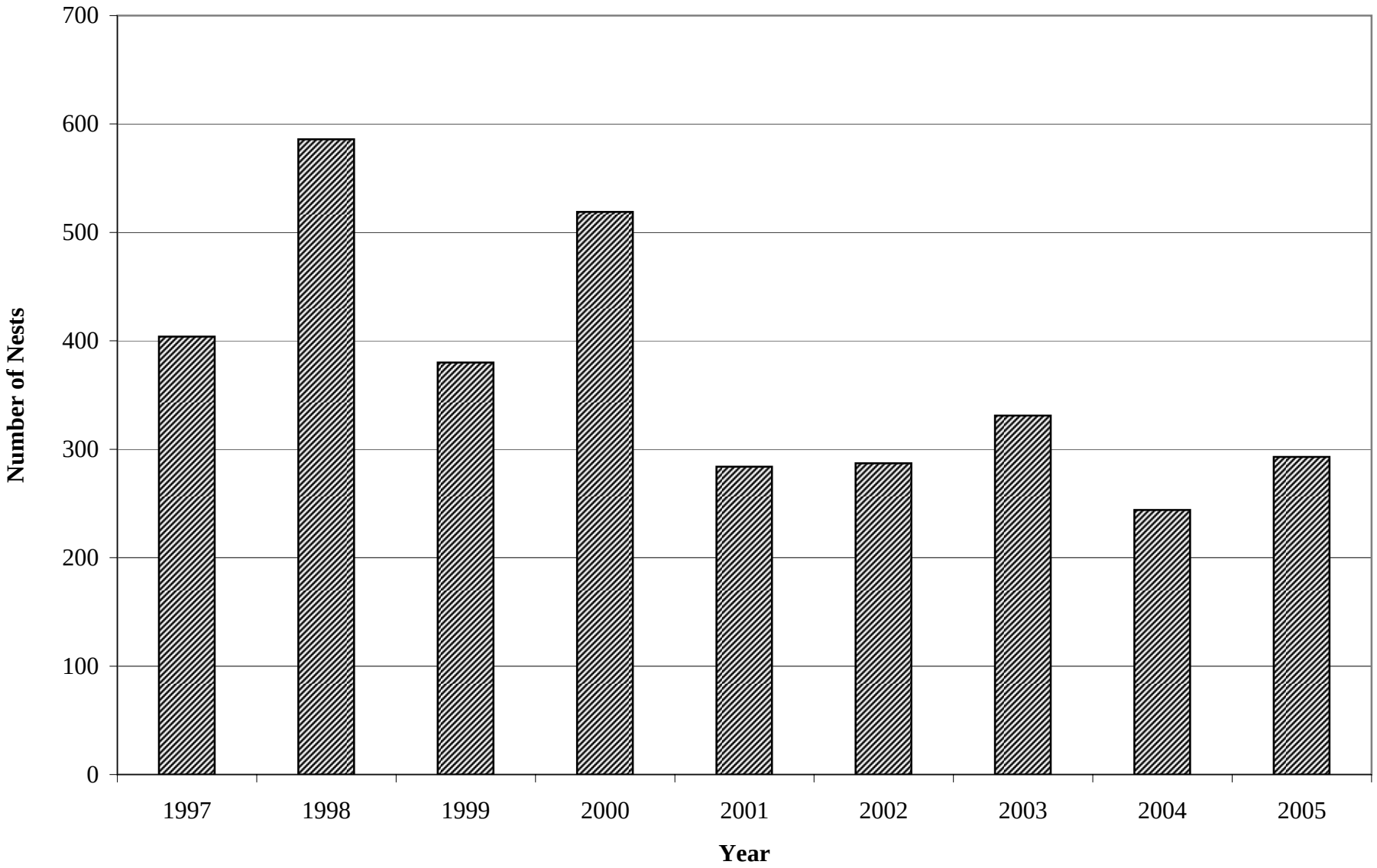

Figure 4. Annual numbers of loggerhead (*Caretta caretta*) nests, St. Lucie Inlet State Park, 1997-2005.

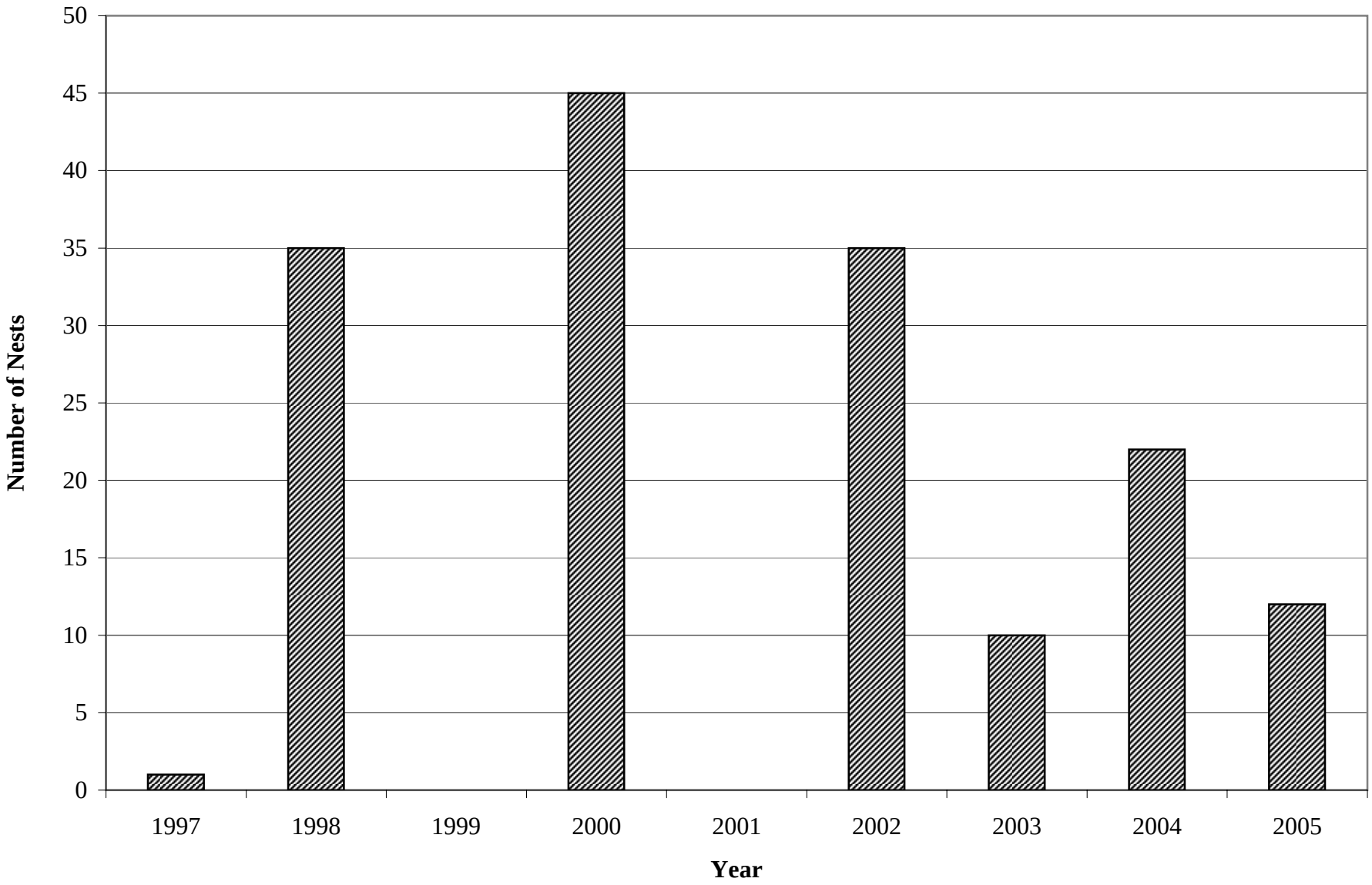

Figure 5. Annual numbers of green turtle (*Chelonia mydas*) nests, St. Lucie Inlet State Park, 1997-2005.

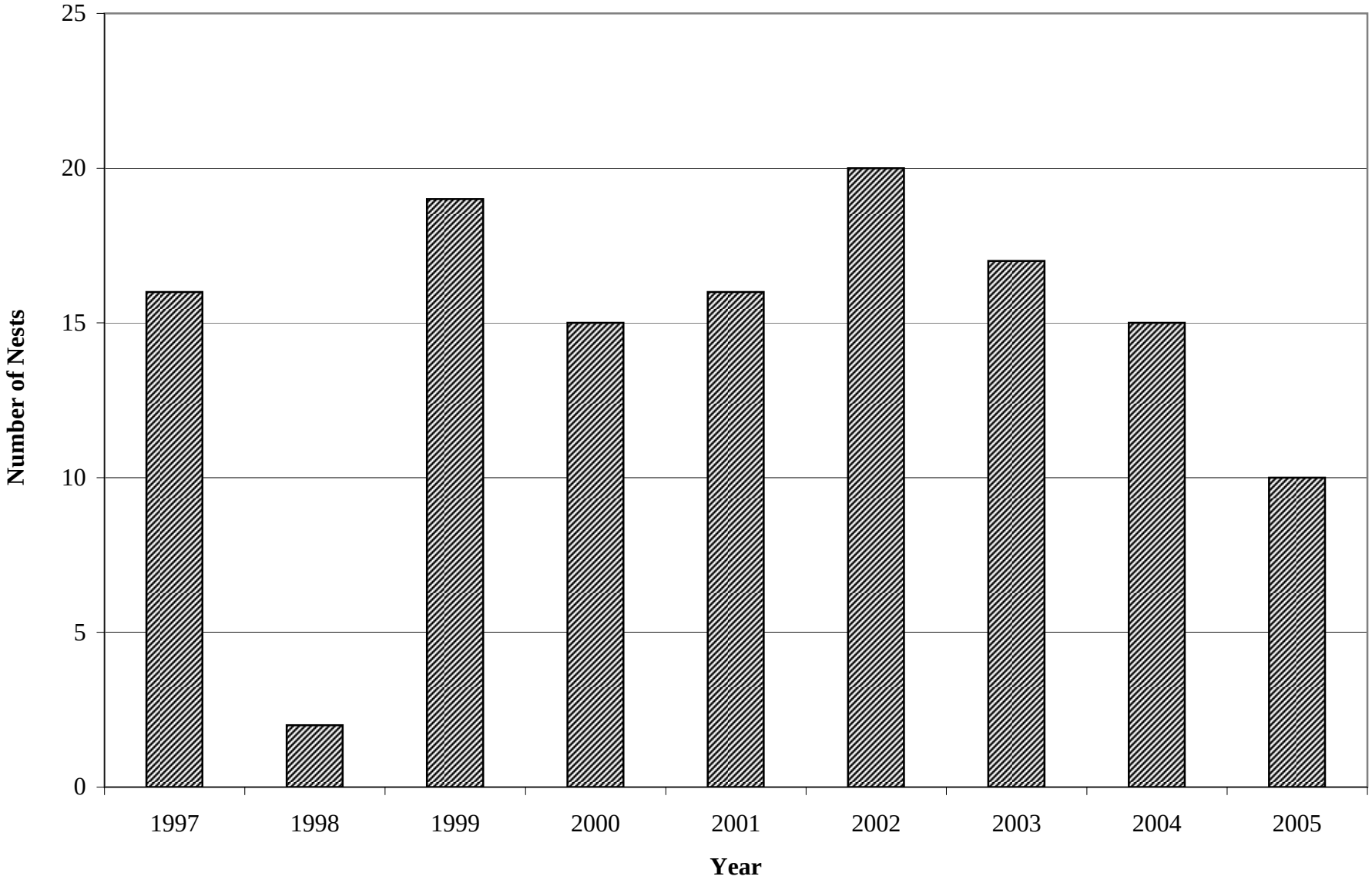

Figure 6. Annual numbers of leatherback turtle (*Dermochelys coriascea*) nests, St. Lucie Inlet State Park, 1997-2005.

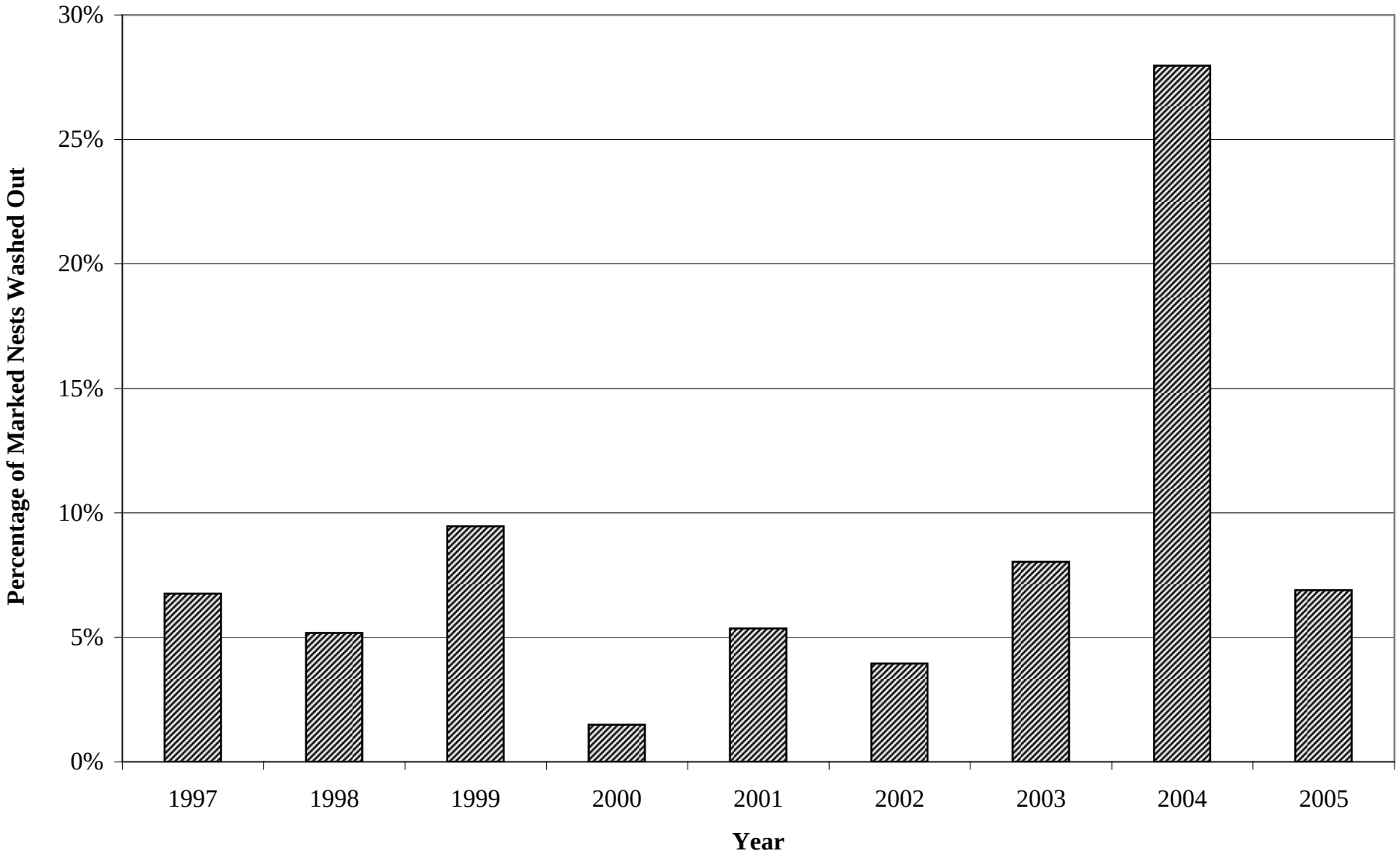

Figure 7. Percentage of marked sea turtle nests washed out annually, St. Lucie Inlet State Park, 1997-2005.

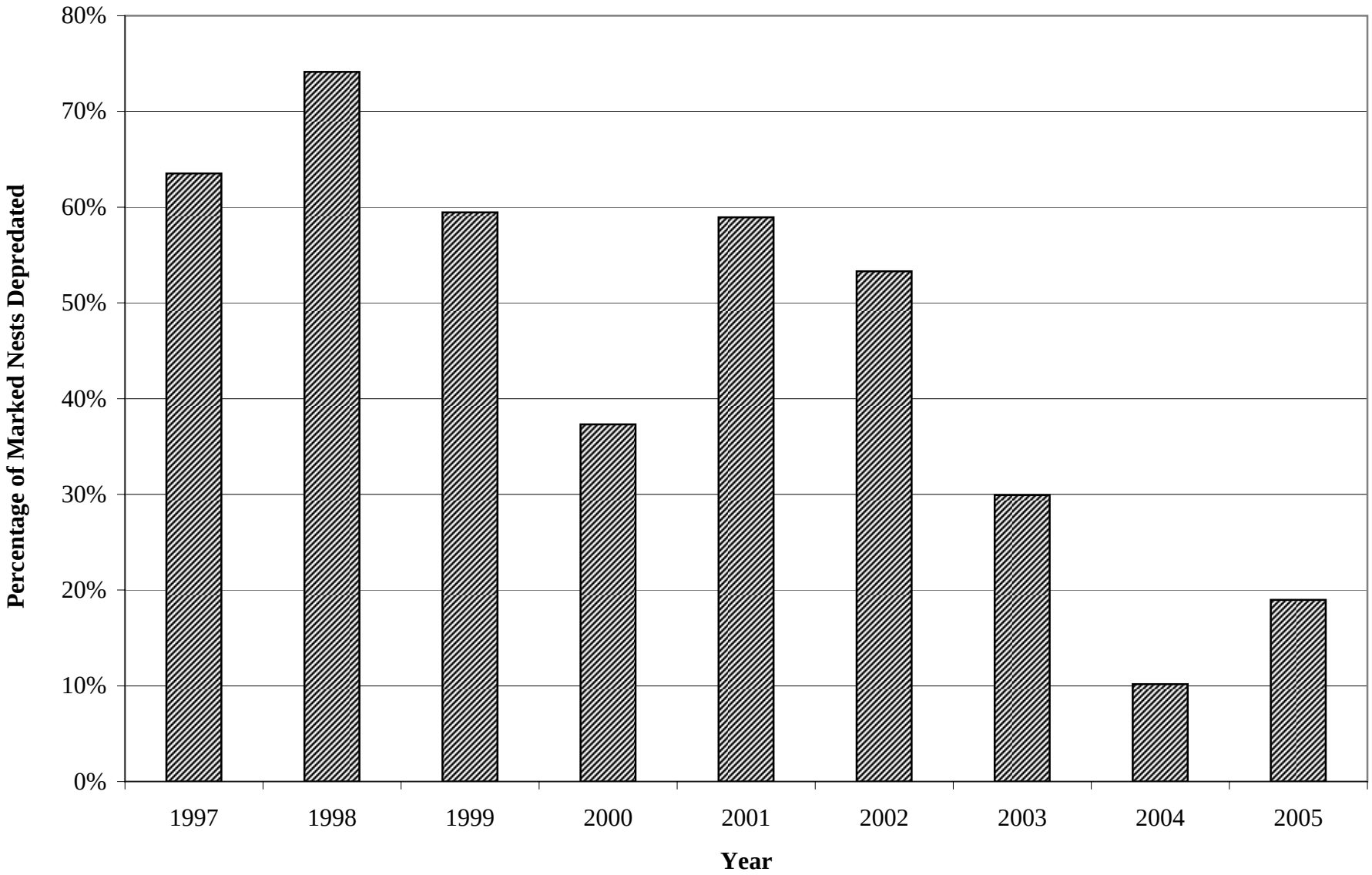

Figure 8. Percentage of marked sea turtle nests depredated annually, St. Lucie Inlet State Park, 1997-2005.